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CITATION:

Nishimura, Saburo ...[et al]. RECORDS OF THE HAWKSBILL TURTLE, ERETMOCHELYS IMBRICATA (LINNE), IN THE JAPAN SEA. PUBLICATIONS OF THE SETO MARINE BIOLOGICAL LABORATORY 1967, 15(4): 297-302

ISSUE DATE:

1967-12-20

URL:

<http://hdl.handle.net/2433/175474>

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RECORDS OF THE HAWKSBILL TURTLE, *ERETMOCHELYS* *IMBRICATA* (LINNÉ), IN THE JAPAN SEA¹⁾

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With 1 Text-figure

The hawksbill turtle, *Eretmochelys imbricata* (LINNÉ), inhabiting the tropical-subtropical seas, is an occasional visitor to the Japanese waters. Most of its occurrences, however, have not been documented nor any effort has been made to compile the records made so far about the occurrences of this sea turtle; thus, its occurrence pattern in the Japanese waters are only vaguely known at present. The senior author, interested in the distribution and migration of sea turtles around the Japanese waters, especially in the Japan Sea, has made some effort, in cooperation with the junior author, to collect such records of the hawksbill turtle from the Japan Sea as many as possible.

So far 39 records have been gathered; some of them are picked up from the published documents, some are based on personal informations from the authors' acquaintances resident in various districts, and the rest are the records made by the authors themselves. All of these records are listed in Table 1, and the localities are shown on the map in Fig. 1.

The authors are much indebted to their cooperators who supplied them with informations; especially they are thankful to Mr. CH. SUGIHARA of Sakata City, Yamagata Prefecture, and Mr. T. TSUTSUMI of the Shimonoseki Aquarium, Shimonoseki City.

As seen in Fig. 1, the hawksbill is recorded from almost the entire west coasts of the Japanese Islands, from the Tsushima Islands in the south to the northwest district of Hokkaido in the north. Frequency of occurrence is not exactly known; but taking into account the fact that generally only a small portion of the captured or observed sea turtles are recorded or preserved, it may be concluded that the hawksbill

1) Contributions from the Seto Marine Biological Laboratory, No. 475.

Table 1. Records of the hawksbill turtle in the Japan Sea, 1736-1967.

Record no.	Locality	Date	Size*	Source & remarks
1	Hahoro, Hokkaido	Sept. 22, 1936	BL 54cm	KURATA 1958
2	Aomori Bay	Late January, 1962	CL 32cm	
3	Yamagata Pref.	Mar. 14, 1883	PL 18cm	"Ryô-u Hakubutsu Zufu" †
4	Yamagata Pref.	Jan. 19, 1889	?	" "
5	Miyanoura, Sakata	November 1930	CL 18cm	Deposited at H. TOMITÔ's, Sakata
6	Jûrizuka, Sakata	Jan. 27, 1960	CL 20cm	Deposited at Tosaka Primary School, Sakata
7	Miyanoura, Sakata	Feb. 11, 1961	CL 23cm	Deposited at Miyanoura Primary School, Sakata
8	Jûrizuka, Sakata	Jan. 31, 1962	CL 8.5cm	Deposited at Tosaka Primary School, Sakata
9	Jûrizuka, Sakata	December 1966	CL 24cm	Deposited at T. HASEGAWA's, Sakata
10	Yura, Tsuruoka	Around 1950	CL 27cm	Deposited at Yura Primary School, Tsuruoka
11	Gakkôchô-hama, Niigata	Feb. 4, 1961	CL 28cm	Deposited at Niigata High School, Niigata
12	Aikawa, Sado Island	1736	?	"Sado Nendaiki" §
13	Aikawa, Sado Island	December 1787	?	" "
14	Aikawa, Sado Island	1791	?	" "
15	Shikabuse near Aikawa, Sado Island	January 1808	?	" "
16	Futami near Aikawa, Sado Island	January 1830	?	" "
17	Futami near Aikawa, Sado Island	Feb. 10, 1961	CL 30cm	Deposited at Aikawa High School, Aikawa
18	Nô, Niigata Pref.	Jan. 21, 1961	CL 33cm	NISHIMURA & MIZUSAWA 1962
19	Nô, Niigata Pref.	Feb. 15, 1965	CL 25cm	Stranded dead. Deposited at Nô Fisheries High School
20	Komatsu-shi, Ishikawa Pref.	Feb. 7, 1952	CL 24cm	Huzino 1952
21	Takanosu, Fukui Pref.	1952	CL 30cm	Deposited at Fukui Provincial Museum
22	Matsubara coast, Tsuruga	Jan. 20, 1965	CL 29.8cm	YASUDA (in press)
23	Nyu Bay, Fukui Pref.	Jan. 23, 1967	CL 32.5cm	YASUDA (in press)
24	Near Obama, Fukui Pref.	1952	CL 30cm	Deposited at Obama Fisheries High School
25	Iwami, Tottori Pref.	Feb. 4, 1956	CL 32cm	KIYOSUYE 1956
26	Near Tottori-shi	?	CL 18cm	Deposited at Tottori Pref. Sci. Museum
27	Near Tottori-shi	Feb. 15, 1960	CL 25cm	" "
28	Ousaka coast, Tottori Pref.	Jan. 15, 1956	CL 42cm	KIYOSUYE 1956

* BL.-Body length; CL.-Carapace length; PL.-Plastron length.

† Old document "Illustrations of Natural Resources of Ryô-u District" (両羽博物図譜).

§ Old document "Chronicle of Sado Island" (佐渡年代記).

Table 1 (continued).

Record no.	Locality	Date	Size	Source & remarks
29	Mita, Oki Islands	January 1956	CL 16cm	KAMITA 1965
30	Oki Islands (?)	?	CL 54cm	KAMITA 1962, 1965
31	Off Hamada	June 28, 1962	CL 40cm	Deposited at Hamada Aquarium
32	Hamada coast	Occasionally in summer	Mostly less than 35cm	Y. IMAOKA (<i>in litt.</i> , May 12, 1967)
33	Off Takayama, Yamaguchi Pref.	Jan. 5, 1958	CL 37.5cm	KAMITA 1962
34	Wakyu, Hôhoku-cho, Yamaguchi Pref.	October 1962	CL ca. 40cm	Shimonoseki Aquarium (<i>in litt.</i> , May 31, 1967)
35	Yatama, Hôhoku-cho, Yamaguchi Pref.	March 1964	CL ca. 30cm	" "
36	Yutama, Toyoura-gun, Yamaguchi Pref.	November 1962	CL ca. 45cm	" "
37	Yutama, Toyoura-gun, Yamaguchi Pref.	September 1963	CL ca. 45cm	" "
38	Yasuoka-machi, Shimonoseki	August 1964	CL ca. 75cm	" "
39	Tsutsu, Tsushima Islands	?	?	YAMAGUCHI 1966

is by no means very rare along the west coasts of the Japanese Islands. This stands in contrast to the situation along the continental coast of the Japan Sea. So far as the authors are aware, no record has been made for the hawksbill along this coast: TERENTJEV & CHERNOV (1949) mention a single record for each of the leatherback turtle *Dermochelys coriacea* (LINNÉ) and the red-brown loggerhead *Caretta caretta* (LINNÉ) from the coast of the Maritime Province, but nothing as to the occurrence of the hawksbill; according to DOI (1936a, 1936b), SHANNON (1956), TAKASHIMA (1958) and others, three species of marine turtles, the leatherback, the (? red-brown) loggerhead and the green sea turtle *Chelonia mydas* (LINNÉ), have ever been captured in Korean waters, but no definite record of the hawksbill.

It is very noteworthy that the majority of the records from the west coasts of Japan with definite dates were made in winter months as shown below:

HAWKSBILL OCCURRENCES IN THE JAPAN SEA IN RESPECTIVE MONTHS

The figures in bold type indicate the number of records made in either the Yamaguchi-Shimane district of Honshu or the northwest Hokkaido, while the ordinary figures are the records made in the districts between those two localities respectively at the southern and northern extremities of the Japan Sea.

January	12	July	0
February	7	August	1
March	1+ 1	September	2
April	0	October	1
May	0	November	1+ 1
June	1	December	2

It is clearly shown that the records made in the warm season from June to October are concentrated in either the westernmost district of Honshu or the west coast of Hokkaido, while those from the districts between these extremities are all made in the cold season from November to March.

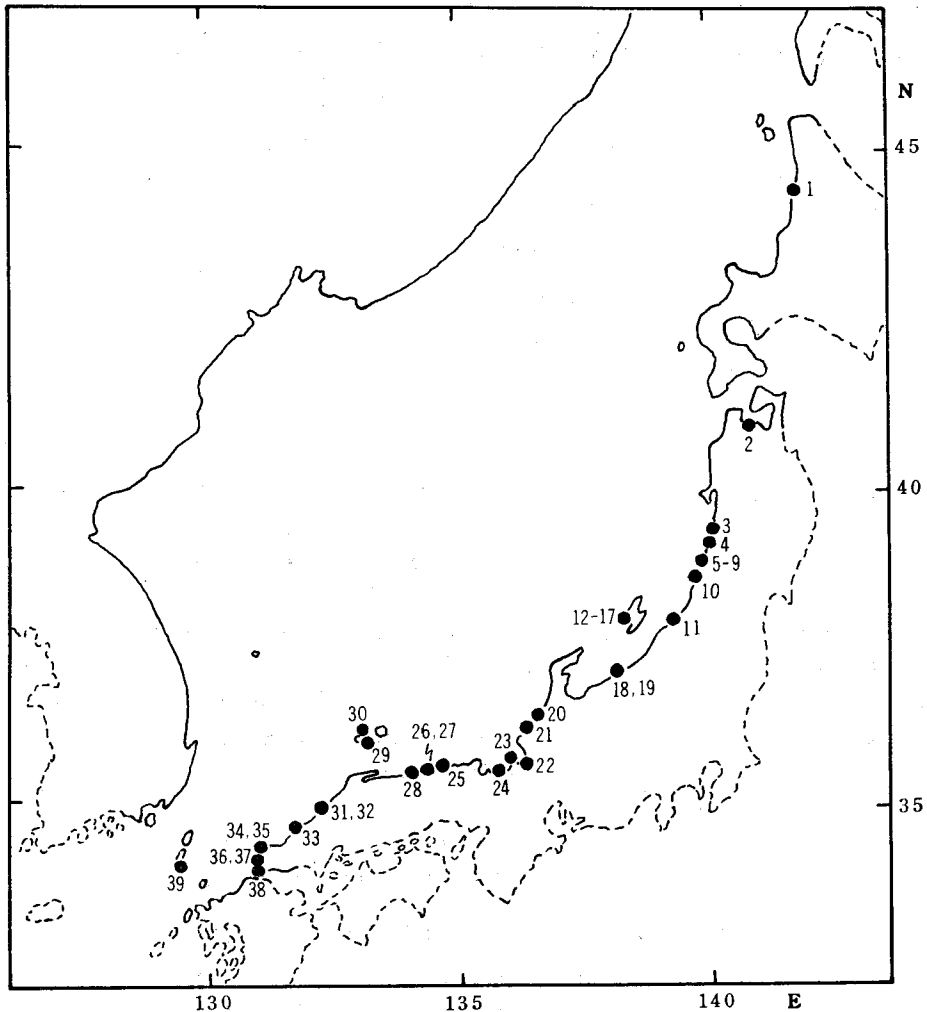


Fig. 1. Localities of the occurrences of the hawkbill turtle along the coasts surrounding the Japan Sea. A considerable number of occurrences have been recorded on the coasts of the Japanese Islands, while no definite record has ever been made on the continental coast. Numerals are the record numbers, for the details of which see Table 1.

Such a trend of occurrence, especially the concentrated occurrences in the cold season on the west coast of middle Honshu, may appear quite strange, since the migration of the hawkbill, a genuine tropical-subtropical animal, into the temperate

region should be realized only in summer months when the surface water temperature is markedly raised. Similar trend is also known for the occurrence of the leatherback turtle in the Japan Sea (NISHIMURA 1964a, 1964b); it is as yet uncertain, however, whether or not the same mechanism as suggested for the migration or wandering of this athecate sea turtle (NISHIMURA 1964b) is applicable to the hawksbill, too.

The hawksbills so far caught in the Japan Sea were mostly young or immature individuals, generally smaller than 45 cm in carapace length (Table 1). The same may be said as to the individuals caught on the Pacific side of Japan. So far as the present authors are aware, mature hawksbills larger than 70 cm in carapace length (cf. DERANIYAGALA 1939, p. 205; CARR et al. 1966) are hardly captured in Japan—the capture of an individual about 75 cm in carapace length at Shimonoseki in August 1964 (no. 38 in Table 1) is truly an exceptional case. Thus, it seems very obvious that this sea turtle never breeds in the Japanese waters. It is supposed, though not substantiated as yet, that the natural habitat of those hawksbill turtles wandering to the Japanese waters is found in the tropical waters such as the South China Sea or the Philippine Sea respectively rich of coral reefs²⁾. The record of the farthest travel of the hawksbill in the Japanese waters from the above-estimated natal seas may be that from off Nemuro, eastern Hokkaido, facing Nemuro or Notsuke Strait at the southern edge of the Okhotsk Sea (SH. NOZAWA in Okada 1930). It is supposed that this individual reached there after drifting through the Japan Sea and then the Okhotsk Sea passing through Sōya Strait rather than that it reached there directly along the Pacific coasts of Honshu and Hokkaido Islands. It is an interesting fact that the young of this sea turtle apparently shows a marked tendency toward a long-distance dispersal much more than the adult which is believed rather strongly sedentary and limited in distribution (HORNELL 1927; INGLE & SMITH 1949; NEILL 1958; CARR et al. 1966).

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2) There are definite evidences for the fact that the hawksbill breeds in the Sulu Sea of the Philippines, around the Palau Islands of the Carolines and on the east coast of Malaya (TAYLOR 1920, 1921; NAKAJIMA 1920; OKADA 1932; HAYASHI 1935; TAKAHASHI 1943; HENDRICKSON & ALFRED 1961; HENDRICKSON 1966; etc.) It is not yet confirmed, however, that the same species also breeds naturally in the waters around Formosa and the Ryukyu (Loochoo) Islands, though it seems fairly common there (cf. STEJNEGER 1907; OKADA 1932; etc.); it is in fact stated that the hawksbills observed in those waters are all small individuals (OKADA 1932).

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